Foreign Aid: an Instrument for Fighting Communism?[*]

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Abstract

In this paper, we test the argument that the sizeable reduction in aggregate aid levels in the 1990's was due to the end of the Cold War. We test two different models using a dynamic econometric specification on a panel of 17 donor countries, spanning the years 1970-1997. We find aid to be positively related to military expenditures in the former Eastern bloc during the cold war, but not in the 1990's, suggesting that the reductions in aid disbursements are driven by the disappearance of an important motive for aid. Our results also suggest that aid allocation may have become less strategic in the 1990's.

Keywords: Political Economy, Foreign Aid, Panel Data

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1 Introduction

The aggregate level of development aid to the traditional group of recipient countries dropped substantially in the 1990s. This is illustrated in Figure 1, which displays aggregate aid, as measured by the OECD definition of Official Development Assistance (ODA), in real \$US from the 17 major Western donors between 1970 and 1997. Several explanations for this downturn have been suggested, such as fiscal imbalances in many of the donor countries, aid fatigue, dispersion of colonial ties, crowding out from new recipient countries in the former Eastern bloc, and a reduction in the lobbying power of beneficiaries of high aid disbursements in the donor countries (e.g. Hopkins 2000, Hjertholm and White 2000, World Bank 1998).
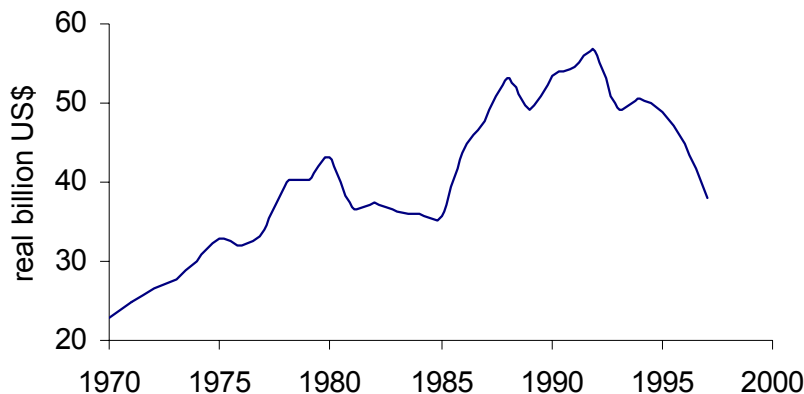

Figure 1. Aggregate development aid.

The focus of this paper, though, is another potential explanation; the end of the Cold War. It has long been argued that the purpose of development aid goes beyond the warm glow effect from giving to people in need. Aid tend to also serve broader foreign policy purposes, such as commercial and strategic interests (e.g. McKinley and Little 1977, Rao 1997, Alesina and Dollar 2000, Fleck and Kilby 2005). The Western and Eastern blocs supported regimes and guerillas in the developing world on ideological grounds in the bipolar world of the Cold War, and it is straightforward to see how aid served as an instrument in this ideological struggle. However, although a seemingly well-established argument, the impact of the Cold War on total aid flows has not been systematically tested on any larger scale with modern estimation techniques.[1] In particular, no study has yet

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[1] There are studies of the aid flows of the major donor countries for shorter periods and, for example, the effect, or motivation, of a specific program in a particular region. Two interesting articles in this

fully exploited the unique – natural experiment like – possibility offered by the dissolution of the Warsaw Pact around 1990 to test the impact of the perceived military threat from the East on total foreign aid flows from the West. It should also be emphasized that the impact of the Cold War is not only of historical interest. Our analysis has clear implications for what to expect from current aid policies in the era of the "war on terrorism".

To identify the effect of the Cold War we develop a simple theoretical framework in which aid can serve two purposes; as an instrument for the donor countries' own military security or to fight poverty in the developing world. We obtain the testable hypothesis that when the security motive is dominating then donor countries give more aid in times of high security risk, since political loyalty from aid recipients then becomes more important. This and other predictions from the model are tested on a dynamic panel of 17 donor countries spanning the years 1970 to 1997. Following the economics of defense literature, we use the military expenditures of the former Eastern Bloc as a proxy for the perceived security risk in the donor countries (e.g. Smith 1995, and Sandler and Hartley 1995).

We find that aid disbursements on average were positively correlated with military expenditures in the former Eastern bloc in the 1970's and 1980's, suggesting that the security motive was crucial during the Cold War era. However, aid is uncorrelated with these military expenditures in the 1990's suggesting that the reduction in aid expenditures can be explained by that one important underlying motivation for aid altogether disappeared. The average effect hides some variation across different donors though. High profile aid donors, those giving relatively more as percentage of GDP and the so called like minded donors, Canada, Denmark, Netherlands, Norway and Sweden, seem not to have been motivated by these security concerns. The big donors in absolute terms all fall in the category of security concerned donors though, and, using a random coefficients model, we show that the variation within the sample does not bias our estimate of the average effect in a significant way.

Strategic motives behind foreign aid have been identified in previous papers looking at the allocation of a given total aid budget among recipient countries. For instance, Alesina and Dollar (2000) find that recipient countries that vote in line with the donors in the general assembly of the United Nations generally receive more aid, and that aid

literature are Schraeder, Hook and Taylor (1998), who perform a comparative empirical analysis of four donors' foreign aid policies towards Africa 1980-1989, and Ball and Johnson (1996) who study US food aid to Africa during the period 1971-1990.

allocation is greatly influenced by former colonial status. Other examples are Maizels and Nissanke (1984) and Hess (1989), who both find that total aid receipts are positively related to arms imports. This strand of literature is well suited for finding the underlying pattern determining the allocation of aid, and thereby the size of the aid budgets in the recipient countries. However, the approach is less suitable for resolving our puzzle, since it takes the total supply of aid from the donor as given. The two approaches are clearly complementary though, in the sense that they represent different ways of understanding the motives behind aid by using different types of data.

Therefore, we analyze a second panel, containing information on the allocation of aid during 1970-1994, subdivided into five-year periods.[2] We ask whether countries that were strategically important during the Cold War indeed got more development aid than comparable countries during the 1970s and 1980s, but not in the 1990s. We define as strategically important countries that received US military aid (not included in our definition of development aid) at least two years out of five within the five-year period.

We find that aid flows to strategically important countries actually decreased during the 1990s when considering aggregate aid flows. Disaggregating the data into different donors reveals a more mixed behaviour though, lending some caution to our allocation results.

The paper is structured as follows. Section 2 discusses the empirical strategy. Section 3 presents the results from the panel of donor countries and in Section 4 we undertake a sensitivity analysis. Section 5 studies the extent of strategic motives in foreign aid allocation, and Section 6 concludes.

2   Empirical Strategy

2.1   The data set

We have collected a panel data set ranging from 1970 to 1997, containing 17 donor countries.[3] The data range is bounded from below for reasons of data availability, and from

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[2] We are grateful to Alberto Alesina and David Dollar for providing the dataset used in Alesina and Dollar (2000).

[3] The sample includes all countries that were members of the OECD Development Association Committee (DAC) during the entire period, namely Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Italy, Japan, Netherlands, New Zealand, Norway, Sweden, Switzerland, the United Kingdom and the United States.

above for the reason that we want to focus on the natural experiment given by the end of the Cold War, an effect that is likely to have vanished after that. As a measure of development aid, we use the OECD definition of Official Development Assistance (ODA), which includes bilateral aid and contributions to multilateral institutions.[4] As an indicator of the enemy's military expenditures, we use the aggregate military expenditures of the Warsaw Pact (WP) before 1990, and thereafter the military expenditures of Russia. This is a standard indicator in the literature (e.g. Seigle (1992) and Smith (1995). There is little doubt that the donor countries all perceived the communist bloc as their major military threat during the cold war, even though the magnitude of that threat varied. The motivation for only using the expenditures of Russia in the 1990's is that many former communist countries, in particular in Eastern and Central Europe, quickly became aligned with the west. Several of these countries are even members of NATO by now. We have run the regressions with the total military expenditures of all former WP countries also in the 1990's, though, and the results were very similar.

In Appendix B, we list the variable definitions and sources, and in Appendix C, we present some descriptive statistics of the data, which reveal quite a large heterogeneity both in the panel dimension – variation in the country-specific means – and the time dimension – variation in country-specific standard deviations.

2.2 Specification of the model

The foundation for our econometric base specification is given by a simple theoretical model, presented in Appendix A. The model suggests that aid expenditures are jointly determined with military expenditures and taxes and depend on the donor country's income and population level, as well as the perceived military threat. In particular, the effect on aid of a decrease in the perceived military threat will depend on the extent to which aid is used as an instrument for domestic security rather than as an instrument to fight poverty in the developing world. If the security motive is dominating, then the negative effect on security aid is greater than the positive effect on aid for poverty alleviation that comes from a reduction in the need for domestic military expenditures. On the other hand, if the poverty alleviation motive is dominating, then we should expect an overall positive

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[4]This definition covers all recipient countries except a set of transitional economies from 1993, labeled as class II countries by OECD/DAC.

effect on the size of the aid budget. Hence, from a theoretical standpoint, it's by no means obvious that the end of the Cold War should lead to a reduction in aid expenditures even if aid is partially motivated by strategic interests, the opposite may very well be true. It follows that a positive correlation between the perceived military threat and aid disbursements in the data would indicate not only that strategic interests prevailed, but that they were important.

Our goal is to estimate a reduced form of the theoretical model, focusing on the aid relationship.[5] To capture the functional form of the demand equation for aid we adopt the following log-linear model,

$$\ln AID_{it} = \alpha_t + \beta_{0t} \ln GDP_{it} + \beta_{1t} \ln POP_{it} + \beta_{2t} \ln THREAT_t + \epsilon_{it} \ , \qquad (1)$$

where AID is total aid disbursements, α is the intercept term, GDP is the level of GDP per capita, POP is the size of the population, $THREAT$ is the level of military expenditures of the enemy, and the error term, ϵ_{it}, is assumed to be normally distributed and i.i.d.[6] Note that we allow the coefficients to potentially vary across time. The reason for this is that the effect of the end of the Cold War may have two interpretations. In the first interpretation, military expenditures in the former Eastern Bloc is perceived as a threat throughout the whole period, a threat that diminished in size though with the substantial reductions in these expenditures in the 1990's. With this interpretation, there is no significant shift in the motivations to give aid and the coefficients are therefore assumed to be constant across time. The reduction in aid disbursements in the 1990's would then, according to this interpretation, be explained by the concurrent reduction in the Warsaw Pact military expenditures. We refer to this interpretation as Model 1.

In the second interpretation, military expenditures in the former Eastern Bloc is perceived as a threat only in the 1970's and 1980's. The motivation for this argument is that

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[5] The theoretical model suggests that an econometric model with a system of equations where the threat variable can influence aid both directly and indirectly through military expenditures, could be used to test whether aid is used only for poverty alleviation (in which case threat should only have an indirect effect) or for security reasons (in which case threat should also have a direct effect). We have tested that model and found that the major effect of threat indeed is the direct effect. More generally, our theoretical approach suggests that different public expenditures are determined jointly. It follows that using the Seemingly Unrelated Regressions (SUR) model to estimate a system of expenditure equations could be more efficient, since it allows for contemporaneous correlations in the error terms across these equations. However, estimating expenditures on other public goods goes beyond the focus of the current paper, and single-equation OLS is still consistent. It should be kept in mind though that the standard errors we present may be somewhat inflated, i.e. we run the risk of doing a Type II error.

[6] We have also tested using aid per capita (non-logged) as the dependent variable, which yields equally strong and robust results.

the breakdown of communism led to a political and economic reorientation towards market liberalism and democracy, resulting in a relative normalization of international politics in the 1990s. With this interpretation, we expect a structural break in β_2 at the end of the Cold War, and that $\beta_2 = 0$ in the 1990's. In this case the reduction in aid in the 1990's is due to the complete disappearance of a motive for aid, rather than the more gradual effect of a reduction in the perceived threat level. This change in the motivation for aid may also influence the relative importance of other variables, though, so we allow all independent variables to have a structural break in 1990. We refer to this interpretation as Model 2.

Going beyond our theoretical framework, there are reasons to believe that the demand equation for aid should have a dynamic specification. As pointed out in Wildavsky (1964), current year's spending in any public agency is predominantly influenced by the budget of the previous year. According to Mosley (1985), this is particularly true for aid agencies, since aid projects often run over several years, with financial flows being committed already in year one. To shed light on the dynamic specification, we follow the procedure suggested in Maddala (1987) and Anderson and Hsiao (1982). According to these authors, it is possible to use a Wald test to study if the lagged dependent variable has a direct effect on the dependent variable, apart from the indirect influence generated by serial correlations of the errors.[7] This test clearly shows that a state-dependence model should be adopted when explaining aid. We only use one year lags, because additional lags turned out to be insignificant, and did not have a fundamental impact on the other estimates.

For several reasons, a fixed effects model (FE) appears as the logical econometric specification. First, there may be state-invariant, unmeasured factors influencing aid levels, such as political institutions or taste parameters. Thus, it is desirable to allow for these differences by using country specific intercepts. Second, the dimension of our panel is significantly smaller than the number of time periods. While it is well-known that the fixed effects estimator generates biased results in a dynamic panel, this bias decreases in the number of time periods and vanishes as t goes to infinity. The FE-estimator is therefore recommended when working with data sets of our dimensions, since the alternative

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[7]The procedure suggested in Maddala (1987) consists of two parts. First, it is tested whether a serial correlation model is to be used. For this purpose, reformulate a serial correlation model $y_{it} = \beta' x_{it} + \alpha_i + w_{it}$ with $w_{it} = \rho w_{it-1} + u_{it}$ as follows: $y_{it} = \rho y_{it-1} + \beta' x_{it} + \beta \rho x_{it-1} + \eta_i + u_{it}$. If there is serial correlation in the errors, then the coefficient of the lagged independent variables should be equal to minus the product of the coefficients of current x and lagged y. Second, once it has been established that a serial correlation model should not be used, it is tested whether $\rho = 0$.

unbiased estimators are less efficient; see for example, Attanasio, Picci and Scorcu (2000) and Judson and Owen (1999). Finally, the countries in our sample constitute, in principle, the whole population of the donor countries, so it is appropriate to treat the individual effects as fixed rather than random.

Finally, to avoid problems of omitted variable bias, additional control variables, denoted by the vector X, are included. These controls are defined when introduced. The base specification is thus formulated as

$$\ln AID_{it} = \alpha_{it} + \beta_{0t} \ln AID_{i,t-1} + \beta_{1t} \ln GDP_{it} + \beta_{2t} \ln POP_{it} + \beta_{3t} \ln THREAT_t + \gamma_t X_{it} + \epsilon_{it} \ .$$

$$(2)$$

The differences from the specification in equation (1) are that the intercept term, α_{it}, is country specific, and that lagged aid expenditures and a set of control variables, X_{it}, are included on the right-hand side.

3 Base Results

Columns 1-3 in Table 1 show the results of estimating Model 1. In the first column we have estimated equation (1). All variables have the expected signs and, except for population size, the results are significant at the 1 percent level. Aid expenditures are relatively persistent, with a coefficient value of 0.69 on the lagged dependent variable, which is in line with the findings in Mosley (1985). The (short-term) income elasticity is 0.49, which means that aid increases less than proportionally to an increase in per capita GDP, implying that it is considered to be a necessity rather than a luxury good in our sample of countries. The positive correlation between *THREAT* and *AID* is of particular interest, yielding the first preliminary support to our hypothesis that aid has been used as an instrument for the donor countries' own military security. This is only a first-pass through the data, though.

Reviewing the early literature estimating the size of foreign aid suggests two variables not included in the basic specification of our model. Beenstock (1980) and Mosley (1985) mention unemployment and budget deficits as important explanatory variables. The argument for both is that there may be obvious incentives to cut aid expenditures and redirect funds towards domestic expenditures in times of fiscal problems. An additional variable

that has been emphasized in the literature is aid to more advanced Central and Eastern European Countries and new independent states from the former Soviet Union (Hopkins 2000, Hjertholm and White 2000). These aid flows are not included in the definition of ODA used as our dependent variable, although these countries emerged as aid recipients in the 1990s, after the break-up of communism in the Eastern Bloc. A crowding-out effect may, therefore, be another potential explanation for the drop in our measure of aid in the last decade.

It is also reasonable that aid levels depend on the price of poverty reduction. Collier and Dollar (2001) argue that the marginal cost of poverty reduction decreases with the level of poverty and in the extent of economic and political reforms in the developing world. We have, therefore, tried with measures of economic and political freedom, from Gwartney et all (2001) and Freedom House (2001) respectively, and a headcount index of poverty, measuring globally the number of people living on less than \$2 a day, based on Bourguignon and Morrisson (2001) and Chen and Ravallion (2001). None of these variables had any significant effect or any substantial impact on the other relationships, though, so these results are not presented. However, a measure of life expectancy at birth, *LIFE*, was significant in some specifications, so we included this variable. Column 2 in Table 1 presents the results of including *LIFE* and the other additional variables.[8] None of these variables enter significantly at this stage, and their inclusion has a negligible impact on the variables of the base specification. This may be somewhat surprising, but it should be emphasized that we control for GDP per capita in this regression, so the effect of a general economic recession is already captured by this variable. Furthermore, Round and Odedokun (2003) also find that fiscal surplus has no impact. The reason may be, as pointed out in Browne 1999, that aid is such a small component of national budgets that it may be protected when spending is being constrained due to fiscal problems.

In the 1990s, a recurrent topic in the foreign aid literature was the apparent spread of *aid fatigue,* i.e. an increased disillusion with the ability of aid to alleviate poverty

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[8] *BUDGET* is defined as the change in the general government's financial balances as a percentage of nominal GDP, *UN* as the unemployment ratio and *CEEC* as the aid to Central and Eastern European Countries and new independent states from the former Soviet Union. The reason for capturing the importance of budget imbalances in this way is that it ought to be the changes and not the levels per se that are important for budget cuts. We have also tried to instrument *BUDGET* with its lagged values to avoid potential endogeniety problems due to the fact that aid expenditures are part of the government budget, as well as tested to use the level of the budget deficit, instead of the change in the budget deficit, but they are also insignificant. See Appendix B for exact definitions.

and enhance economic growth. This disenchantment of the beneficiary effects of foreign aid may also have caused a decrease in aid levels.[9] Theoretically, aid fatigue could be accounted for through survey data on individuals perceptions of aid effectiveness, but these types of surveys only exist for a limited number of countries and a limited number of years.

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[9]World Bank (1998) was one of the many responses to this debate. See Collier and Dollar (2001) for an updated overview of the findings on aid effectiveness.

	(1) Fixed Effects	(2) Fixed Effects	(3) Fixed Effects	(4) Fixed Effects	(5) Fixed Effects	(6) Fixed Effects
Aid_{t-1}	0.6887***	0.6756***	0.5708***	0.6643***	0.6534***	0.5550***
	(0.0219)	(0.0251)	(0.0372)	(0.0239)	(0.0257)	(0.0379)
Income	0.4870***	0.4674***	0.5630***	0.4746***	0.4674***	0.5717***
	(0.0443)	(0.0472)	(0.0580)	(0.0474)	(0.0493)	(0.0618)
Population	0.0536	-0.0944	0.4035	0.0308	-0.0414	0.5996**
	(0.1702)	(0.2334)	(0.3006)	(0.1889)	(0.2307)	(0.2847)
Threat	0.0574***	0.0524***	0.0959***	0.3899**	0.4949***	0.6278***
	(0.0117)	(0.0124)	(0.0198)	(0.1533)	(0.1804)	(0.2239)
Fiscal Balance		-0.0067	-0.0071		-0.0047	0.0028
		(0.0046)	(0.0053)		(0.0054)	(0.0067)
Life Expectancy		0.5042	1.4721		0.4548	1.8429*
		(0.3398)	(0.8989)		(0.3745)	(1.0821)
CEEC		0.0000	-0.0000		0.0000	-0.0000
		(0.0000)	(0.0000)		(0.0000)	(0.0000)
Unemployment		-0.0051	0.0023		-0.0121**	-0.0032
		(0.0044)	(0.0051)		(0.0053)	(0.0060)
Aid fatigue			0.0038*			0.0039
			(0.0019)			(0.0024)
1990's dummy				1.5508*	11.1097***	15.7296***
				(0.8640)	(3.2490)	(2.9748)
Threat*90's				-0.3255**	-0.5106***	-0.6227***
				(0.1554)	(0.1835)	(0.2254)
Income*90's				0.1478*	0.1718*	0.1146
				(0.0769)	(0.0952)	(0.0920)
Population*90's				-0.0173	-0.0155	-0.0288
				(0.0306)	(0.0330)	(0.0306)
Aid_{t-1}*90's				-0.0197	-0.0452	-0.0249
				(0.0331)	(0.0349)	(0.0333)
Life Expectancy*90's					-0.1586***	-0.2382***
					(0.0568)	(0.0534)
Unemployment*90's					-0.0003	-0.0099
					(0.0068)	(0.0064)
Fiscal Balance*90's					-0.0026	-0.0118
					(0.0107)	(0.0105)
Aid fatigue*90's						0.0050
						(0.0061)
Observations	459	459	306	459	459	306
Number of Countries	17	17	17	17	17	17
R-squared	0.88	0.88	0.77	0.88	0.89	0.81
F-test probability				0.0004	0.5818	0.8659

*** denotes significance at the 1 percent level, ** denotes significance at the 5 percent level, and * denotes significance at the 10 percent level.

Table 1: Determinants of donor country aid disbursements, 1970-1997.

However, if aid fatigue is based on disappointment with the results of aid projects, then we can use the outcome performance of evaluated projects as a proxy. We use an index of the outcome performance of World Bank projects measuring the satisfactory outcome performance in per cent of the evaluated projects. This means that if aid is given as a function

of its success rate, then we should expect a positive coefficient on *FATIGUE*. Column 3, Table 1 reports the expected sign on this coefficient, and it is indeed significant.[10]

In Columns 4-6 we test Model 2, i.e. we allow for a structural break in 1990. To test this model, we interact a dummy for the years 1990 to 1997 with our independent variables to see if the coefficient values are significantly different in the 1990s. The results are presented in Table 1, columns 4-6. Of particular interest, the interaction term of *THREAT* and the 1990 dummy is indeed negative and significant. Moreover, F-tests of the joint significance of the linear terms and the interaction terms, reported in the last row of Table 1, indicate that the hypothesis that the joint effect is equal to zero can only be rejected in the most parsimonious specification. Hence, as will be even clearer in the next section, the results strongly suggest that Model 2 better fit the data, i.e. that military expenditures in the former Eastern bloc was a determinant of aid disbursements only during the Cold War. The reduction in aid levels following the end of the Cold War is thus due to that the underlying motivation for aid changed, not only that the perceived threat diminished in size. This is further reinforced by the fact that the impact of life expectancy on aid levels becomes negative and highly significant in the 1990's, indicating that the overall health situation in the recipient countries now became more important.

4   Robustness

In this section we check the robustness of our results to a broad range of potential pitfalls in our empirical strategy. The results in Table 1 clearly suggested that Model 2 better fits the data, so the sensitivity analysis is done on the specification with a structural break in the 1990's. As shown in Table 2, the Aid fatigue variable comes alive in several specifications, so we chose the most encompassing model from the previous section.

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[10]There exists a couple of studies that have also looked at the impact of political institutional variables, ideology of the government or domestic social spending (Fleck and Kilby 2005, Round and Odedokun 2003 and Noel and Therien 1995). We tried with a dummy for right-wing versus left-wing governments in a previous version of the paper, but, in line with the findings in Round and Odedokun 2003, it was never significant. The results for domestic social spending varies across studies, with Noel and Therien 1995 finding a positive correlation between domestic generosity and international generosity, while the results in Round and Odedokun 2003 are at best ambigous. More generally, political institutions and domestic social spending tend to vary mainly across countries. Our THREAT variable is constant across countries and only varies over time. Hence, it is highly unlikley that omitting these variables leads to any significant bias in our estimates.

4.1 Data and specification

Our first concern addresses potential measurement problems associated with our main explanatory variable, *THREAT*. The problems arise from raw data not having been available to researchers outside the WP, especially for the period before 1980. Estimates of these figures have predominantly been made by the Stockholm International Peace Research Institute (SIPRI) and the United States Arms Control and Disarmament Agency, in the so called World Military Expenditures and Arms Transfers (WMEAT) data. Following the bulk of the literature we have chosen to use SIPRI data in our analysis. When comparing the series from SIPRI and WMEAT, the difference is mostly a matter of level where the US Agency has a somewhat higher estimation of the military expenditures of the Warsaw Pact than SIPRI. Nevertheless, given how crucial the THREAT variable is for our identification, we want to make sure that the results are not driven by faulty data. We have therefore estimated our base regression using WMEAT data.[11] The results, presented in Column 1 in Table 2, show that the difference in outcomes is negligible.

Another concern is the fact that the variable identifying the strategic use of aid in our estimations is common to all donor countries in the panel. As pointed out in Moulton (1990), if there are year-specific unobservable characteristics that are common across panels, standard errors from OLS regressions can be downward biased in the presence of common explanatory variables. In Columns 2 and 3, we present the results from two different approaches dealing with this potential problem. In Column 2, we have used standard errors corrected for potential heteroscedasticity and contemporaneous correlation in the error terms, as suggested in Moulton (1990). The standard errors increase as expected, weakening the statistical significance of the two THREAT variables, but they both remain significant at the 10-percent level.

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[11]We thank Silvia Pezzini at STICERD, London School of Economics, for having shared her WMEAT data with us.

	(1) Fixed effects	(2) Fixed effects	(3) Fixed effects	(4) GMM	(5) Fixed effects
Aid_{t-1}	0.5578***	0.5550***	0.5468***	0.5642***	0.5435***
	(0.0372)	(0.0471)	(0.0387)	(0.0407)	(0.0366)
Income	0.5374***	0.5717***	0.6132***	0.5696***	0.4811***
	(0.0596)	(0.0756)	(0.0890)	(0.0613)	(0.0616)
Population	0.5927**	0.5996*	0.6175**	0.6140***	0.4669*
	(0.2809)	(0.2970)	(0.2893)	(0.2357)	(0.2797)
$Threat_{wmeat}$	1.4811***				
	(0.4180)				
Threat		0.6278*	0.4673*	0.5298**	
		(0.3265)	(0.2416)	(0.2128)	
$Threat_{t-2}$					0.8594***
					(0.2729)
Fiscal Balance	0.0035	0.0028	0.0012	0.0016	0.0048
	(0.0067)	(0.0051)	(0.0067)	(0.0070)	(0.0067)
Life Expectancy	0.7084	1.8429	1.7436	4.1991	2.6120***
	(1.1857)	(1.1535)	(1.1880)	(4.4447)	(1.0011)
CEEC	-0.0000	-0.0000	-0.0000	-0.0000	-0.0000
	(0.0000)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Unemployment	-0.0051	-0.0032	-0.0028	-0.0042	-0.0045
	(0.0060)	(0.0034)	(0.0060)	(0.0084)	(0.0059)
Aid fatigue	0.0066***	0.0039	0.0069**	0.0043	0.0076***
	(0.0021)	(0.0028)	(0.0027)	(0.0034)	(0.0022)
1990's dummy	20.2794***	15.7296***	16.7569***	14.9922***	22.2123***
	(3.3518)	(1.3994)	(3.0042)	(3.2180)	(5.1900)
$Threat_{wmeat}$*90's	-1.4794***				
	(0.4191)				
Threat*90's		-0.6227*	-0.4714**	-0.5535***	
		(0.3293)	(0.2391)	(0.1955)	
$Threat_{t-1}$*90's					-0.9006***
					(0.2760)
Life Expectancy*90's	-0.2180***	-0.2382***	-0.2649***	-0.2289***	-0.3257***
	(0.0526)	(0.0244)	(0.0549)	(0.0516)	(0.0910)
Unemployment*90's	-0.0090	-0.0099	-0.0104	-0.0102*	-0.0114*
	(0.0064)	(0.0061)	(0.0064)	(0.0053)	(0.0064)
Fiscal Balance*90's	-0.0127	-0.0118	-0.0117	-0.0099	-0.0163
	(0.0104)	(0.0070)	(0.0104)	(0.0123)	(0.0105)
Aid_{t-1}*90's	-0.0297	-0.0249	-0.0178	-0.0354	-0.0296
	(0.0331)	(0.0266)	(0.0332)	(0.0263)	(0.0330)
Income*90's	0.1374	0.1146	0.0834	0.1172	0.1491
	(0.0912)	(0.0794)	(0.0926)	(0.0718)	(0.0917)
Population*90's	-0.0266	-0.0288	-0.0355	-0.0182	-0.0264
	(0.0304)	(0.0305)	(0.0306)	(0.0225)	(0.0304)
Aid fatigue*90's	0.0018	0.0050	0.0002	0.0039	0.0003
	(0.0058)	(0.0060)	(0.0067)	(0.0039)	(0.0051)
Business cycle			2.3776**		
			(1.0245)		
Aggregate GDP			0.0000		
			(0.0000)		
Observations	306	306	306	289	306
Number of countries	17	17	17	17	17
R-squared	0.82	0.99	0.82		0.82
F-test probability	0.9555	0.8483	0.8986		0.3131

*** denotes significance at the 1 percent level, ** denotes significance at the 5 percent level, and * denotes significance at the 10 percent level.

Table 2: Sensitivity analysis.

Another way of dealing with the issue of a common variable is to include other common variables that may have had an impact on the pattern of aid, to see how these affect the correlation between *THREAT* and *AID*. For this purpose, we introduce two other

common variables, one measure of the worldwide business cycle and one measure of the worldwide level of GDP, into our base specification.[12] The aggregate business cycle effect turns out positive and significant, suggesting that aid commitments increase in good times. Moreover, as shown in Column 3, inclusion of these variables also somewhat weakens the results for the *THREAT* variables, but they remain significant at the 10 and 5 percent level respectively.

A third concern is inconsistency due to the presence of fixed effects in a dynamic panel. As mentioned previously, the fixed effects model is often recommended in dynamic panels of our size, but there are still reasons to check whether the results hold when we use a consistent estimator. Arellano and Bond (1991) suggest a general method of moments (GMM) technique using the values on the dependent variable and the independent variables lagged twice and more as instruments. This model does not only generate consistent results in the presence of fixed effects, but it opens up for the possibility to treat our *THREAT* variable as predetermined, i.e. we can partly deal with its potential endogeneity. Treating *THREAT* as predetermined and allowing for heteroscedasticity, we get the results presented in Table 2, column 4. The coefficient values on the *THREAT* variables are somewhat smaller but remain highly significant, and there are no major changes in the estimated effect of any of the other variables.[13]

A fourth issue involves the timing of the effect of a decrease in the perceived threat. Eyeballing the trends of aggregate aid and military expenditures in the former Eastern Bloc, seems to suggest that if there is a causal effect from the latter on the former, it may come with a lag. Potential reasons for this are that bureaucratic rigidities may prevent countries from changing aid levels instantaneously, or uncertainty of the real value of military expenditures in the Eastern bloc, or how to judge the threat they represent. To test this, we run a regression using two year lagged values on THREAT. As is shown in column 5, the estimated effect of THREAT is now somewhat bigger and slightly more significant, suggesting that the full effect may come with a two year lag.

The final dimension of our sensitivity analysis concerns the sample of countries and the

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[12] The proxy for the worldwide business cycle is constructed as the sum of the growth rates in real GDP in the seven largest economies (Canada, France, Germany, Italy, Japan, United Kingdom, United States), weighted by their shares of GDP in total GDP. The measure of the overall level of GDP is constructed as the sum of the levels of GDP in all countries in the sample, weighted by their shares of total GDP.

[13] The consistency of these results rely on there being no second order autocorrelation. Testing for this shows that the hypothesis of zero second order autocorrelation cannot be rejected. Furthermore, a Sargan test of the overidentifying assumptions indicates that the instruments are valid.

time span. We can't expand our set of countries, since our sample consists of the complete set of members of the OECD Development Assistance Committee during these years. However, we can experiment with dropping different countries to check that no single country drives our result, reflecting the average effect. In fact, it might be suspected that outliers would weigh heavily in the results. The United States has, for example, had the highest level of military expenditures while, at the same time, being one of the countries giving the least foreign aid in per capita terms, or as a share of GDP. Therefore, we have reestimated our base specification excluding, one at a time, the United States, as well as all other countries. This does not change our coefficient values or their significance more than marginally, however.

Note also that the results reported in the last row of Table 2 all support Model 2, i.e. the hypothesis that THREAT had no impact in the 1990's cannot be rejected in any of the specifications.

4.2   Poolability

The results reported so far all reflect the average effect of THREAT on aid disbursements within our full sample. This may of course hide variation among donor countries in the extent to which the size of their aid budget reflects strategic motives. This suspicion is fueled by the aid allocation literature which shows a substantial variation among donor countries in their motives for allocating a fixed aid budget across recipient countries (e.g. Alesina and Dollar 2000 and McGillivray 1989). We therefore relax the assumption of poolability in this section and look for variation across different groups of donors, and test to what extent our findings impact on our previous estimates of the average effect.

Any division of the sample into subgroups will necessarily be somewhat arbitrary. However, the group of Canada, Denmark, Netherlands, Norway and Sweden, sometimes referred to as the "like minded donors" (Stokke 1989) is generally perceived as being less motivated by strategic and commercial interests. As a first take, we therefore split the sample in two, with these like minded donors in one group, and the rest in a second group. The results are reported in Table 3, Columns 1 and 2. The results in Column 1 suggest that there indeed is variation within the group of donors; neither of the THREAT variables enters significantly (though with the expected signs) in the subsample of like

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minded donors. In Column 2, though, both THREAT variables enter significantly with coefficients somewhat larger than those generated for the full sample in Table 1, Column 6.

	(1)	(2)	(3)	(4)	(5)	(6)
	FE	FE	FE	FE	OLS	H-H
Aid_{t-1}	0.4798***	0.5615***	0.4261***	0.5791***	-0.3208	0.4092***
	(0.0921)	(0.0492)	(0.0727)	(0.0646)	(0.2948)	(0.0602)
Income	0.5258***	0.6123***	0.5308***	0.6132***	-0.0557	0.6296***
	(0.0918)	(0.0781)	(0.0754)	(0.0972)	(0.4283)	(0.1484)
Population	-0.4471	0.6677*	0.8239*	0.8414*		-0.1068
	(0.7776)	(0.3670)	(0.4907)	(0.4716)		(3.5870)
Threat	0.2243	0.7392**	0.2291	0.8849**	0.9246**	0.4292**
	(0.3066)	(0.2975)	(0.2555)	(0.3729)	(0.4382)	(0.2008)
Fiscal Balance	-0.0034	0.0090	-0.0056	0.0129		-0.0119
	(0.0061)	(0.0109)	(0.0061)	(0.0143)		(0.0075)
Life Expectancy	5.1038***	0.4960	2.9627**	0.3697		2.1235
	(1.3805)	(1.4316)	(1.1906)	(1.8226)		(2.2118)
CEEC	0.0002	-0.0000	0.0000	-0.0000		
	(0.0002)	(0.0000)	(0.0001)	(0.0000)		
Unemployment	-0.0054	0.0010	-0.0041	-0.0058		-0.0187
	(0.0078)	(0.0084)	(0.0069)	(0.0120)		(0.0306)
Aid fatigue	0.0078***	0.0023	0.0060**	0.0020		
	(0.0028)	(0.0032)	(0.0025)	(0.0040)		
1990's dummy	8.3789*	16.4281***	10.7566***	18.0810***	28.7377**	2.0921*
	(4.2872)	(3.9253)	(3.3377)	(5.0008)	(10.9247)	(1.1183)
Threat*90's	-0.1792	-0.7370**	-0.2064	-0.8715**	-0.8903*	-0.3809*
	(0.3072)	(0.2994)	(0.2560)	(0.3753)	(0.4461)	(0.2065)
Life Expectancy*90's	-0.1545**	-0.2363***	-0.2012***	-0.2556***		
	(0.0701)	(0.0704)	(0.0588)	(0.0903)		
Unemployment*90's	0.0153	-0.0138	0.0066	-0.0094		
	(0.0096)	(0.0098)	(0.0085)	(0.0135)		
Fiscal Balance*90's	-0.0074	-0.0274	-0.0028	-0.0300		
	(0.0105)	(0.0166)	(0.0101)	(0.0206)		
Aid_{t-1}*90's	-0.0189	-0.0623	0.0852	-0.0760	-0.2217	
	(0.1389)	(0.0640)	(0.0639)	(0.0885)	(0.4653)	
Income*90's	0.1380	0.1074	0.1205	0.1296	-6.9587***	
	(0.1680)	(0.1342)	(0.1392)	(0.1655)	(2.3925)	
Population*90's	-0.0095	0.0138	-0.1393*	0.0178		
	(0.1061)	(0.0639)	(0.0707)	(0.0876)		
dummy for 1990's	8.3789*	16.4281***	10.7566***	18.0810***		
	(4.2872)	(3.9253)	(3.3377)	(5.0008)		
Aid fatigue*90's	0.0063	0.0054	0.0051	0.0073		
	(0.0076)	(0.0081)	(0.0065)	(0.0101)		
Observations	90	216	144	162	27	459
Number of countries	5	12	8	9	1	17
R-squared	0.91	0.80	0.84	0.82	0.75	
F-test probability		0.9558		0.7840	0.6861	0.3387

*** denotes significance at the 1 percent level, ** denotes significance at the 5 percent level, and * denotes significance at the 10 percent level.

Table 3: Poolability.

Part of the reduction in significance in Column 1 may simply be driven by the quite substantial reduction in the number of observations. Hopkins (2000) argues that the more

generous countries had the smallest decline in aid levels in the 1990's and at the same time had the least responsibility for the Cold War world structure. We therefore also split the sample more evenly into a group of 8 countries and a group of 9 countries, based on aid generosity, measured as aid over GDP. All countries in the first group (Australia, Belgium, Canada, Denmark, France, Netherlands, Norway and Sweden)) gave more than 0.4 percent of aid relative to GDP on average over the 28 years, whereas all countries in the second group (Austria, Finland, Germany, Italy, Japan, New Zealand, Switzerland, United Kingdom and USA) gave less than so. The results from the more generous group are presented in Column 3 and show once again variation within the sample; none of the THREAT variables are now significant. On the other hand, both THREAT variables are significant for the less generous group, as is seen in Column 4, and coefficient values are now even higher. Note however, that relative generosity does not imply absolute generosity. The two by far largest donors in absolute terms, the US and Japan, are both in the second sample in which THREAT matters.

In column 5 we show the results from an OLS regression testing our model on data from the US. We now have only 28 observations so we chose an as parsimonious specification as possible. As expected, both THREAT variables are significant, and the estimated coefficients are now even higher. Note though that we once again reject the hypothesis that aid levels were influenced by military expenditures in the Eastern bloc in the 1990's. The results thus suggest that the East-West conflict ceased to be a factor for aid policy even in the US in the 1990's.

What are then the implications from these results for our estimates of the average effect of THREAT on aid in the previous tables? That is, is the estimated average effect inconsistent if poolability is incorrectly assumed? Yes, as shown in (e.g.) Pesaran and Smith (1995), incorrectly pooling data may yield inconsistent estimates if the model is dynamic. To address this problem, we therefore re-estimate our basic equation using the Hildreth-Houck random coefficients model, which yields consistent estimates of the average effect in the presence of heterogeneity. This model treats the coefficient vector as the realization of a stochastic process and, as suggested in Swamy (1971), the estimator is computed as a precision weighted average of panel-specific OLS estimators. This approach involves the estimation of a great number of parameters, so once again we have to use

a more parsimonious model. The results are presented in Column 6. The estimated coefficients on the THREAT variables are now somewhat smaller, indicating that the previously estimated effect was somewhat inflated, but, more importantly, both variables are still statistically significant. Hence, even when we address the potential problem of incorrectly pooling the data, the estimated average effect of THREAT on aid levels remains positive during the Cold War years and turn to zero in the 1990's.

5   Strategic Allocation of Aid

If the decline in aid levels in the 1990s was due to the end of the Cold War, then it should also have affected the allocation of aid to developing countries during the last decade. Developing countries that were considered as strategically important during the Cold War ought to have received less aid in the 1990s than before. Consequently, if aid previous to 1990 at least partially was given for donor-strategic reasons, we should observe a shift in the allocation of foreign aid from strategically important developing countries to less strategically important ones during the 1990s. This section aims to test if there has been such a shift in the allocation of aid in a panel of developing countries. To do so, we need to identify which developing countries were strategically important during the Cold War.

The literature on aid allocation has made several suggestions in this respect. Schraeder, Hook and Taylor (1998) employ military expenditures (in per cent of GDP) in the aid recipient countries as an indicator of the country's strategic importance. They argue that a larger military arsenal makes a country more important as an ally. Ball and Johnson (1996) use US and Soviet arms transfers as indicators of strategic motives behind US food aid to Africa. Lately, Burnside and Dollar (2000) employed military imports (relative to total imports) to capture the strategic importance of developing countries. Alesina and Dollar (2000) and Alesina and Weder (2002) use yet another indicator to measure strategic behavior in aid allocation. They argue that the voting patterns in the United Nations serve as a good indicator of the degree of alliance between donors and recipient countries: in general, UN-friends are found to obtain significantly more aid than other countries.

For our purpose we need to find a variable that, as precisely as possible, relates to the donor countries' own military security, and is specific to the Cold War motive. Looking

at data from the Cold War era, a number of previous studies have found disbursements of military aid to be highly dependent on strategic and political motives – see Poe and Meernik (1995), Payaslian (1996), and Brozska (1995) for more details. This suggests that countries receiving military aid have been perceived as strategically important. Data on each donor country's military aid expenditure is however not available due to different accounting practices across countries. Therefore we instead use data on US military aid to assess the strategic importance of a developing country during the Cold War. The underlying assumption is that American strategic considerations can be taken as a proxy for those of all Western donors.

The data set on aid allocation spans the years 1970 to 1994, with data averaged in five-year periods.[14] It contains information about bilateral aid flows from donor countries in the OECD. There are 180 recipient countries in the sample; data is not limited by the observation of aid flows but rather on the availability of the controls.

The basic data is identical with that used in Alesina and Dollar (2000). Using this data allows us to estimate the impact of strategic concerns on aid allocation while controlling for political and humanitarian factors that also should impact the donors' aid decisions. The dependent variable is the amount of aid allocated to different developing countries (divided by the population in the recipient country). As basic controls we include the recipient's initial GDP level (*GDP initial*), the degree of economic openness (*OPENNESS*), the extent of democracy (*DEMOCRACY*), the population size (*POPULATION*) and the number of years as a colony to any donor country (*COLONY*). Dummies for Israel and Egypt are also included to account for these countries' particular position as aid recipients. In addition, we attempt to control for donors' commercial interests in aid recipient countries by including the donor's export (as share of total exports) to the aid recipient.[15] To capture a recipient country's strategic importance we use two dummy variables. The first one is *STRATEGIC*, which is a dummy assuming the value 1 when the recipient got US military aid for at least two out of five years in each five-year period. The other variable is *Friend X,* which captures whether the recipient country voted along with the donor country in the UN General Assembly. (All variables are described in detail in Appendix

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[14] The end of the sample period is determined by the availability of one particular explanatory variable, namely *Friend X* (the extent to which recipient countries vote along with donors in the UN General Assembly) from the Alesina and Dollar (2000) dataset.

[15] Trade, and in particular exports, are often used to capture donors' commercial interests as in Maizels and Nissanke (1984) and Fleck and Kilby (2005).

B.)

Our specific hypothesis is that strategically important countries should get significantly more development aid in the 1970s and 1980s, and no more than comparable countries in the 1990s. To test this hypothesis, we include our strategic variable *STRATEGIC* both linearly and interacted with a time dummy for the 1990s, called *D90*. Thereby, we only test Model 2, i.e. whether there is a structural break in *STRATEGIC* in 1990. What we expect to find is a positive linear term and an insignificant joint effect, reflecting the impact on the 1990s. For completeness we also interact the other explanatory variables with the time dummy *D90* to study if the end of the Cold War had any impact on their importance for aid allocation.

Our sample contains both countries that did and did not receive foreign aid during a given period. As shown in McGillivray (2005), this implies that it is appropriate to use limited dependent variable estimation methods rather than OLS. We have chosen to report Tobit estimations in Table 4, while the OLS results (largely similar) are available from the authors on request.

The first column in Table 4 uses the received per capita aid levels aggregated over all donors as the dependent variable. The linear term is indeed significantly positive, whereas the interacted effect shows up as negative. To test the hypothesis that *STRATEGIC* had no impact in the 1990s, we once again test the joint significance of the direct and the interacted effect. This test cannot reject the null-hypothesis that *STRATEGIC* did not have any impact on aid allocation in the 1990s. The other explanatory variables assume the expected signs and are generally significant, except for *EXPORT* which is insignificant and with the wrong sign. A potential explanation is that commercial interests are donor specific and are not caught by the aggregate export flows to aid recipient countries.

Columns 2 to 5 in the table report on the results from country-specific regressions, with the same specification, for four dominant donor countries. The donor-specific regressions for Japan and Germany largely confirm this pattern with aid to strategically important donor countries decreasing during the 1990s.

	(1) ODA pc	(2) ODA_USA	(3) ODA_JAPAN	(4) ODA_FRANCE	(5) ODA_GERMANY
STRATEGIC	0.778***	31.257***	9.935	13.613***	8.859***
	(0.123)	(10.015)	(7.981)	(3.443)	(2.424)
GDP initial	-0.638***	-21.990***	-9.676	-9.324***	-4.433**
	(0.103)	(8.012)	(6.005)	(2.872)	(1.999)
OPENNESS	0.223	25.229*	35.949***	-2.421	1.238
	(0.178)	(14.417)	(12.864)	(5.059)	(3.413)
DEMOCRACY	0.165***	11.194***	4.438*	0.221	3.007***
	(0.035)	(2.911)	(2.324)	(1.036)	(0.696)
POPULATION	0.401***	14.898***	19.347***	-2.391*	9.048***
	(0.055)	(3.728)	(3.203)	(1.275)	(1.027)
COLONY	0.213***	4.759	6.008**	3.224***	3.361***
	(0.036)	(2.984)	(2.346)	(1.091)	(0.712)
Friend USA	-0.010***	0.560**			
	(0.004)	(0.247)			
Friend JAPAN	0.047***		0.580		
	(0.009)		(0.519)		
Friend FRANCE				-0.186	
				(0.248)	
Friend GERMANY					0.408**
					(0.185)
EXPORT	-11.025				
	(7.416)				
US EXPORT		-378.186			
		(339.397)			
JAPAN EXPORT			1,039.193***		
			(332.385)		
FRANCE EXPORT				1,272.842***	
				(129.784)	
GERMANY EXPORT					115.583
					(112.812)
DUMMY90	-0.898	-12.290	44.672	40.694	60.601
	(4.211)	(207.560)	(264.054)	(96.520)	(80.861)
STRATEGIC*D90	-0.862*	-52.903	-90.716***	29.247**	-19.775*
	(0.510)	(41.602)	(34.029)	(14.342)	(10.480)
GDP initial*D90	0.080	1.999	-31.595**	-5.025	-12.708**
	(0.249)	(19.658)	(14.732)	(7.523)	(4.924)
OPENNESS*D90	0.381	-13.168	29.694	-32.530***	-1.538
	(0.358)	(29.091)	(24.201)	(10.169)	(7.127)
DEMOCRACY*D90	-0.250**	-10.149	8.194	-3.905	0.673
	(0.105)	(8.501)	(6.807)	(3.194)	(2.105)
POPULATION*D90	0.177	-1.779	43.713***	-2.166	4.596*
	(0.116)	(8.209)	(6.930)	(3.140)	(2.554)
COLONY*D90	-0.189**	1.167	8.558	-0.023	-0.725
	(0.094)	(7.532)	(6.212)	(2.725)	(1.833)
Friend USA*D90	0.016	3.940***			
	(0.013)	(1.092)			
Friend JAPAN*D90	-0.009		-5.654***		
	(0.032)		(2.111)		
Friend FRANCE*D90				0.731	
				(0.644)	
Friend GERMANY*D90					-0.303
					(0.532)
EXPORT*D90	1.525				
	(13.309)				
US EXPORT*D90		170.562			
		(524.625)			
JAPAN EXPORT*D90			527.164		
			(516.331)		
FRANCE EXPORT*D90				1,189.565***	
				(402.306)	
GERMANY EXPORT*D90					813.095***
					(301.303)
Observations	399	402	402	402	401
Pseudo R^2	0.234	0.108	0.057	0.063	0.096

*** denotes significance at the 1 percent level, ** at the 5 percent level, and * at the 10 percent level. The constant term and dummy variables for Israel and Egypt are not reported.

Table 4: Aid allocations, 1970-1994.

For the US, the strategic concerns remained as important in the 1990s. This does not mean that the US aid allocation was not affected by the end of the Cold War, but rather that new strategic concerns that emerged after 1990 influenced aid allocation to the same

extent as the Cold War did previously. The results in column 4 (the French aid allocation) are most surprising in that French aid became more strategically motivated after the end of the Cold War, thus contradicting the hypothesis of this paper. It is difficult to know whether the differences in single donors' strategic behavior in the 1990s are the result of *STRATEGIC* being an imperfect indicator of strategic concerns, or if these divergences rather highlight the heterogeneity in donors' motivations. Ideally, we would have had a variable indicating if each recipient country was of strategic interest for the donors during the Cold War rather than using US military aid as a proxy, but we have not managed to find such data.

Regarding our other strategic variable, *Friend X*, its impact does not appear to have been effected by the end of the Cold War in general - see column 1. However, Japan decreased its foreign aid to its *UN Friends* during the 1990s, while the US increased the aid to those that voted as the US in the UN General Assembly. The results in columns 2 to 5 suggest the donors have different motives for giving development assistance. Other results from Table 3 show that more aid is given to recipient countries with large populations. Commercial interests enter most significantly in Japan's and France's aid allocation decisions. This is consistent with the findings in the previous literature, such as Schraeder, Hook and Taylor (1998), where France was found to support its former colonies, while Japan gave aid primarily based on commercial interests in the recipient country. Moreover, more democratic regimes obtain more development aid, and the absence of trade barriers can favor aid. Finally, a higher initial GDP level in a developing country implies, ceteris paribus, that the country gets less foreign aid.

Summarizing, the results reported in Table 4, column 1, support the hypothesis that strategically important countries received more aid than comparable countries during the Cold War, but not in the 1990s. For single donors, though, the picture is less clear. To what extent this is driven by the donors' different motives or by the imperfectness in our indicators of strategic importance is hard to tell, but it lends some caution to the interpretation of the results in Column 1.

6 Conclusions

We have analyzed why the aggregate supply of development aid decreased so much in the 1990s, focusing in particular on the impact of the end of the Cold War. In a dynamic panel analysis of 17 donor countries, we found that total aid disbursements were positively correlated with the military expenditures of the former Warsaw Pact countries in the 1970's and 1980's, but not in the 1990's. Hence, the end of the Cold War led to cuts in the aid budgets because one important motivation for aid disbursements altogether disappeared. This picture was partly reinforced by an analysis of aid allocation among recipient countries, in which we found that strategically important countries – defined as those receiving US military aid – obtained more development aid in total than comparable countries in the 1970s and 1980s, but not in the 1990s. However, disaggregating the data into donor specific allocation patterns revealed a much more scattered outcome, which probably reflects a combination of different donor patterns and the difficulty of coming up with an appropriate measure of strategic motives for the allocation analysis.

As always, a few words of caution are needed when interpreting econometric results. We have throughout the study done our best to control for other potential explanatory variables (in particular those that can be argued to be correlated with military expenditures in the former Eastern bloc), but, of course, some of the nuances of the decision making process are impossible to capture. In particular, the influence that different donors have on each other, and the influence on political decisions from shifts in public opinion, are likely to be important factors that we can only partially account for. However, there is no strong reason to believe that these factors are particularly highly correlated with our primary variable of interest, so even if our picture is incomplete, there is no reason to believe that the effect of the military threat is seriously biased. The intuitive sense, and robustness of our results throughout different specifications, at least convinces us that we are measuring something real.

The findings from this paper should be put in the context of the current debate about the future of development aid. The conclusions from this study are that the end of the Cold War may have improved aid allocation, but has also substantially cut the aggregate aid levels. If the "war on terrorism" has a similar effect as the Cold War, we expect an increase in aid flows but also that aid allocation becomes more governed by strategic

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interests and less by its ability to increase growth and reduce poverty. A thorough analysis of this issue is beyond the reach of this paper, but some recent evolutions of US aid can put this in perspective. On the first account, US terrorism-related assistance increased on the order of $3.3 billion in fiscal year 2002 (Weiner 2002). On the second issue, i.e. the potential deterioration in the aid allocation, the Millennium Challenge Account (MCA) announced by President George W. Bush in March 2002 seems to be in contrast with our conclusions. More specifically, the MCA will allocate funding based on objective selection criteria emphasizing good governance and sound economic policies, which seems to preclude the option to target strategically important countries. The question, though, is how much of this awareness that will survive the "realpolitik" of aid that is likely to follow upon the increasing calls for security-related assistance. For instance, the Bush administration's sudden decision in November 2002 to expand the pool of eligible MCA countries to middle income countries (including now strategically important countries such as Jordan, Egypt and Russia), have been seen as a move in that direction (Brainard 2003). Furthermore, as pointed out in Radelet (2002), countries like Egypt and China qualify for MCA assistance under current conditions, despite their histories of wasted aid inflows and human rights deficiencies.

To conclude, the recent history, from the end of the Cold War to the "war on terrorism", has had a fundamental impact on the determinants of foreign aid. Learning from past experiences can thus be important to better understand what the likely effects of the most current events are going to be. The finding that the drop in aid levels can be attributed to a large extent to the end of the Cold War, should be contrasted with the more positive findings that total aid budgets, and probably aid allocation, have become less strategically motivated in the 1990's.

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Appendix A. Conceptual Framework

In this appendix, we develop a simple model, where aid can serve as an instrument for the donor countries' own military security. There are three goods in the model, one private good, x, and two public goods, external security, S, and poverty alleviation, P. The economy is populated by n identical individuals who earn an exogenous per capita income, y. The utility function is written in a general, but separable form, and is assumed to be continuous and concave in all its arguments,

$$U(x, S, P) = F(x) + G(S) + (1 - \alpha) H(P) .$$

Following the literature, external security is assumed to increase with the country's own military expenditures, M, and decrease with the military expenditures of the enemy country, M^e. To introduce the main hypothesis, we allow what we refer to as strategic aid, A^s, to serve as a complement to military expenditures in the production of security. In addition, there is altruistic aid, A^a, which serves as the instrument for poverty alleviation. Total aid is thus given by $A = A^s + A^a$. The security and poverty alleviation technologies are given by

$$\begin{cases} S = V(M) + \alpha W(A^s) - M^e \\ P = A^a \end{cases},$$

where $V(M)$ and $W(A^s)$ are concave and twice differentiable. The parameter $\alpha \in [0, 1]$ captures the degree to which the donor sees aid as an instrument for military security rather than poverty alleviation. As α increases, the weight on aid in the security function increases, while the weight on poverty alleviation decreases. Public goods are financed by an income tax, τ, and budget balance is required. The representative individual thus maximizes

$$F(x) + G(V(M) + \alpha W(A^s) - M^e) + (1 - \alpha) H(A^a)$$

subject to

$$\begin{aligned} x &= (1 - \tau) y \\ \tau n y &= M + A \\ A &= A^s + A^a \end{aligned}.$$

The first-order conditions of the optimization problem implicitly define the solutions for A^{s*}, A^{a*} and M^* as continuous functions of the exogenous variables:

$$A^{s*} = A(n, y, M^e; \alpha) \tag{3}$$

$$A^{a*} = A(n, y, M^e; \alpha) \tag{4}$$

$$M^* = M(n, y, M^e; \alpha). \tag{5}$$

As the equations above indicate, the equilibrium levels of aid and military expenditures depend on the parameter α. In particular, if $\alpha = 0$ then $A^{s*} = 0$ and $A^* = A^{a*}$, whereas if $\alpha = 1$ then $A^{a*} = 0$ and $A^* = A^{s*}$. Straightforward comparative statics show that $\frac{\partial A^{s*}}{\partial M^e} \geq 0$, whereas $\frac{\partial A^{a*}}{\partial M^e} \leq 0$, with strict inequality whenever $A^{i*} > 0$. The first implication of this is that $\frac{\partial A^*}{\partial M^e} < 0$ if $\alpha = 0$. In this case, the sole purpose of aid is to reduce poverty. A marginal increase in the military expenditures of the enemy has no direct impact on aid incentives in this case, but military expenditures will increase to meet the increased threat, meaning that the consumption of all other goods – altruistic aid included – will be cut to meet the budget constraint. On the other hand, $\frac{\partial A^*}{\partial M^e} > 0$ if $\alpha = 1$. In this case, aid only serves as a complement to military expenditures in the production of security. Therefore, military expenditures and aid will both be raised to meet the increased threat from the military enemy. Finally, if $\alpha \in (0, 1)$ there are two counteracting effects; strategic aid will increase while altruistic aid will decrease. Which effect that dominates depends on parameter values (α included) and functional forms. To sum up the results of the model, comparative statistics also reveal that (i) $\frac{\partial A^{i*}}{\partial y} > 0$, $\frac{\partial M^*}{\partial y} > 0$; (ii) $\frac{\partial A^{i*}}{\partial n} > 0$, $\frac{\partial M^*}{\partial n} > 0$; and (iii) $\frac{\partial M^*}{\partial M^e} > 0$.

The model presented suggests how the end of the Cold War might have led to a reduction in the level of aid disbursements. However, it also shows that this is not the necessary outcome, as long as aid is also used for poverty alleviation. The reason is that a reduction in the military threat leads to a reduction in military expenditures (something we have seen happening also in the real world) which frees up public resources that can be used for other public goods, including aid for poverty alleviation. Hence, the effect on total aid levels will depend on the relative importance of aid as a tool for security concerns relative to the weight put on fighting poverty in the developing world. Hence, a positive correlation between military expenditures and aid disbursements not only indicates that security concerns have mattered for aid policy, but that it has been an important explanatory factor.

Appendix B. Data sources

- *AID*: Official Development Assistance, as defined by OECD/DAC, in millions of real (1990 year prices) \$US. This definition includes non-military grants and net disbursements of concessional loans with at least a 25 percent grant element. From OECD, Development Co-operation, various years.

- *BUDGET*: Absolute change from the previous year in the general government's financial balances as percent of GDP. From OECD, *Economic Outlook*, various years, and IMF, International Financial Statistics, for Switzerland 1970-1997 and New Zealand 1970-1985.

- *CEEC*: The aid level, in millions of real US$, to what OECD defines as Part II countries, which are basically the relatively more affluent transitional economies of the former Eastern Bloc. From OECD, *Development Co-operation*, various years.

- *COLONY*: Number of years as the colony of any colonizer since 1900 (in logs). From Central Intelligence Agency (1996).

- *DEMOCRACY*: A democracy index with a seven-point scale, where 7 is the most democratic. From Gastil (1990).

- *Egypt*: Dummy for Egypt after Camp David.

- *EXPORT*: share of all donor countries exports to a recipient country out of total exports from donor countries to recipient countries. *US EXPORT*, *JAPAN EXPORT*, *FRANCE EXPORT*, and *GERMAN EXPORT* are defined in the same way. Constructed from Feenstra et all (2004).

- *FATIGUE*: Satisfactory outcome performance, in per cent, of evaluated World Bank projects weighted by disbursement. From World Bank (2001).

- *GDP*: Gross Domestic Product per capita in real US$. From IMF, *International Financial Statistics*, (IFS 1298).

- *GDP initial*: Real GDP per capita at the beginning of each five-year period. From Summers and Heston (1988) and updated to 1992.

- *Israel*: Dummy for Israel.

- *LIFE*: Life expectancy at birth in years. It indicates the number of years a newborn infant would live if the prevailing patterns of mortality at the time of its birth were to stay the same throughout its life. From World Bank, *2000 World Development Indicators*.

- *MIL*: Military expenditures in billions of real US$ (1990 year prices). From *SIPRI Yearbook*, various years.

- *OPENNESS*: The proportion of years a country is open. From Sachs and Warner (1995).

- *PARTY*: A dummy with value 1 if the incumbent party is right wing, and 0 if left wing. From Alesina, Roubini and Cohen (1997) for 1970-1993; Banks, various years, for 1994-1997.

- *POP*: The size of the population in millions in donor countries. From IMF, *International Financial Statistics* (1298), except the figures for 1997 for Belgium, Germany, Ireland, Japan, Luxembourg, Portugal, United Kingdom that are from OECD, Labour Force Statistics, 1999.

- *POPULATION*: The size of the population in millions in recipient countries at the beginning of the period (in log). From Summers and Heston (1988) – updated to 1992.

- *ODA per capita*: OECD's official development assistant net per capita in real US$ 1985 prices; ODA_USA, ODA_JAPAN, ODA_FRANCE, and ODA_GERMANY are defined in the same way. Notice that this is the actual aid disbursed. From OECD (1996).

- *STRATEGIC*: Dummy variable assuming value 1 if the recipient country got US military aid at least two years out of five. Constructed from USAID (2000).

- *THREAT*: Total military expenditures in the former WP countries in billions of real US$, 1990 year prices. From *SIPRI Yearbook*, various years.

- *UN*: The rate of unemployment, OECD, *Labour Force Statistics*, 1999.

- *Friend_X*: Percentages of times in which the recipient has voted in the United Nations as X, where X are different donor countries. From Alesina and Dollar (2000).

- *WMEAT*: Total military expenditures of countries in the Warsaw Pact in billions US$ in 1990 year prices as estimated by United States Arms Control and Disarmament Agency in their publication *World Military Expenditures and Arms Transfers* (various issues).

Appendix C. Descriptive statistics

	lnAID	lnTHREAT	lnGDP	lnPOP
lnAID	1			
lnTHREAT	-0.12	1		
lnGDP	0.37	-0.38	1	
lnPOP	0.83	-0.03	-0.01	1

Table C1: Correlation matrix.

	AID	THREAT	GDP	POP
Mean	2366.64	182.65	17.72	40.79
Std. Dev.	2822.69	79.41	6.02	57.93
Max.	12426.22	267.73	39.07	267.90
Min.	22.90	29.67	6.58	2.81
Obs.	476	476	476	476

Table C2: Descriptive statistics for main variables.

	AID		GDP		POP	
	Mean$_i$	Std. Dev$_i$	Mean$_i$	Std. Dev$_i$	Mean$_i$	Std. Dev$_i$
Mean	2366.64	738.30	17.71	4.49	40.79	2.68
Std. Dev.	2689.10	826.04	3.76	1.94	59.40	4.86
Max	9802.80	3327.35	26.04	9.17	235.65	18.99
Min	95.64	23.28	11.48	1.73	3.23	0.08

Table C3: Descriptive statistics for country-specific means and standard deviations.